Evidence Supports Use of Accelerated Joint Replacements

Everything seems faster these days -- including rehab and recovery from total hip and total knee replacements. In this study from Denmark, a group of researchers compared patients in a standard rehab program for joint replacements compared with an *accelerated* program. They looked at two things: cost and effectiveness. They found a big cost savings with the accelerated approach for both hip and knee replacements. The accelerated approach was more effective with hip replacements.

There are many ways in which the accelerated treatment plan is different from the standard postoperative care. The idea is to shorten the time to recovery. The goal is to reduce costs without adverse effects on the patient's recovery. Right from the start, the accelerated group is treated together. Together, as a group, they receive information and patient education about the procedure before hospitalization. The standard protocol calls for individual patient information one-on-one the day of the surgery.

Patients in the accelerated group are all placed together in one separate part of the hospital surgical ward. In the standard approach, joint replacement patients are put in rooms randomly on the Med/Surg floor. One nurse is in charge of the entire rehab team of nurses, Physical Therapists, and occupational therapists. In the standard care approach, each health care professional works independently and there are various nurses in charge.

Accelerated patients begin rehab with the physical and occupational therapists on the day of surgery. Daily goals are preset. Therapy is intense and designed to get them up and moving as quickly as possible. Movement (mobility) and exercise are performed eight hours daily. The standard group doesn't start until the first day after surgery and they go gradually at their own pace. Mobilization is limited to four hours each day. In addition, a special focus was placed on fluid intake for the accelerated group, including two protein drinks each day.

Results for the two groups were measured and compared based on length of hospital stay, health-related quality of life, and any adverse effects. These measures were obtained for the first three months after surgery. Costs associated with each approach were added up and compared for a year after the procedure.

Patients included in the study were having elective (not emergency) surgery. Each one had either a partial knee replacement (called *unicompartmental knee arthroplasty*, total knee replacement or total hip replacement. All surgeries were done by the same group of surgeons using the same surgical and anesthetic procedures.

The patients volunteered to be in the study. They did not have a choice as to which group (accelerated or standard) they were in -- this was randomly assigned. There were 45 patients in each group. They were very similar in age, education, general health, and perceived quality of life (as measured before surgery). They all went home from the hospital rather than to a transition unit or other step-down facility.

Costs were calculated using a wide range of charges and losses. For example, productivity loss was calculated by adding up the amount of money patients lost by not being able to work after surgery. The total cost of the surgery, hospitalization, and all medical care (including therapy) was calculated. Costs of patient education, consultation with the surgeon, anesthesia, and medications were factored in. In order to keep a tally for the full year period of time, each patient was given a diary to take home and fill in the information about any medical costs or charges incurred related to their hip or knee replacement.

Here's what they found regarding complications, costs, and effectiveness for each group. In the standard-protocol group, there was one death reported (due to a blood clot to the lungs) and one patient with a wound infection. In the accelerated-protocol group, one patient had a delayed discharge due to pain and swelling and one patient had to stay in the hospital an extra day because his hip dislocated early on. There were more patients in the accelerated group who had to have a second hip replacement within the first six months after the first surgery.

The average cost of the patient in the standard group was $4000 more than in the accelerated group. In all comparisons made, the accelerated approach always came out ahead in terms of cost-effectiveness. Health-related quality of life improved rapidly for patients in the accelerated total hip replacement group. All patients in the knee replacement groups seemed to have a much slower recovery of heath-related quality of life. Some patients didn't report peak quality of life for many months after the operation.

The authors conclude that the evidence from this study points to the use of an accelerated pathway after surgery for both hip and knee replacements. The benefit to society in terms of cost savings and to the individual patients is evident. They suggest that it's not enough to come up with new techniques to speed patients through the hospitalization process in order to save money. Finding value for the patient is as important. From this study, it's clear that improved health-related quality of health is also possible.

Kristian Larsen, MPH, PhD, et al. Cost-Effectiveness of Accelerated Perioperative Care and Rehabilitation After Total Hip and Knee Arthroplasty. In *The Journal of Bone and Joint Surgery*. April 2009. Vo. 91. No. 4. Pp. 761-772.